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What is claimed is:

1. A production process for a water-absorbent resin, comprising the steps of: blending a liquid material and a water-absorbent resin; and heating the resultant mixture in order to produce a modified water-absorbent resin,

with the production process being characterized by further comprising the step of spray-blending a water-absorbent resin (A) and a liquid material (B) with a blending apparatus equipped with a spray nozzle (C), and being characterized in that the liquid material (B) is sprayed from the spray nozzle (C) and its spray pattern is a circular and hollow cone shape.

2. A production process for a water-absorbent resin, comprising the steps of: blending a liquid material and a water-absorbent resin; and heating the resultant mixture in order to produce a modified water-absorbent resin,

with the production process being characterized by further comprising the step of spray-blending a water-absorbent resin (A) and a liquid material (B) with a blending apparatus equipped with a spray nozzle (C), and being characterized in that the liquid material (B) is sprayed from the spray nozzle (C) and its spray pattern is a double-convex-lens and elliptic cone shape.

3. A production process for a water-absorbent resin, comprising the steps of: blending a liquid material (B) and a water-absorbent resin (A); and heating the resultant mixture in order to produce a modified water-absorbent resin,

with the production process being characterized by further comprising the step of heat-treating a water-absorbent resin under an atmosphere having a dew point of not higher than 60 °C and a temperature of not lower than 90 °C, wherein the water-absorbent resin is obtained after a drying step following a pulverization step.

4. A production process for a water-absorbent resin, comprising the steps of: blending a liquid material and a water-absorbent resin; and heating the resultant mixture in order to produce a modified water-absorbent resin,

with the production process further comprising the steps of: spray-blending a water-absorbent resin (A) and a liquid material (B) with a blending apparatus equipped with a spray nozzle (C); and heat-treating,

with the production process being characterized in that the liquid material (B) is sprayed from the spray nozzle (C) and its spray pattern is a circular and hollow cone shape in the spray-blending step, and in that the heat-treating step is carried out under an atmosphere having a dew point of not higher than 60 °C and a temperature of not lower than 90 °C.

5. A production process for a water-absorbent resin, comprising the steps of: blending a liquid material and a water-absorbent resin; and heating the resultant mixture in order to produce a modified water-absorbent resin,

with the production process further comprising the steps of: spray-blending a water-absorbent resin (A) and a liquid material (B) with a blending apparatus equipped with a spray nozzle (C); and heat-treating,

with the production process being characterized in that the liquid material (B) is sprayed from the spray nozzle (C) and its spray pattern is a double-convex-lens and elliptic cone shape in the spray-blending step, and in that the heat-treating step is carried out under an atmosphere having a dew point of not higher than 60 °C and a temperature of not lower than 90 °C.

6. A production process for a water-absorbent resin according to claim 1, wherein the maximum spray angle of the liquid material (B) from the spray nozzle (C) is not less than 50 °.

7. A production process for a water-absorbent resin according to claim 1, wherein the blending apparatus equipped with the spray nozzle (C) is a continuous blending apparatus comprising an agitation shaft having a plurality of

paddles.

8. A production process for a water-absorbent resin according to claim 7, wherein the area of a spray-dispersing state of the liquid material (B) projected onto a sectional area which is perpendicular to the axis direction of the blending apparatus and includes a spraying point of the spray nozzle (C) accounts for not less than 70 % of the sectional area perpendicular to the axis direction of the blending apparatus.

9. A production process for a water-absorbent resin according to claim 1, wherein the blending apparatus is equipped with the plurality of spray nozzles (C).

10. A production process for a water-absorbent resin according to claim 1, wherein the liquid material (B) is an aqueous solution of a surface-crosslinking agent which forms a covalent bond by reacting with a functional group of the water-absorbent resin (A), and

which further comprises the step of heat-treating the mixture resultant from the blending step at a water-absorbent resin temperature of 80 to 250 °C.

11. A production process for a water-absorbent resin according to claim 10, wherein the liquid material (B) is an aqueous solution including at least one selected from the group consisting of polyhydric alcohols, polyglycidyl compounds, 1,3-dioxolan-2-on, poly(2-oxazolidinone), bis(2-oxazolidinone), and mono(2-oxazolidinone).

12. A production process for a water-absorbent resin according to claim 11, wherein the liquid material (B) is an aqueous surface-crosslinking agent solution including a polyhydric alcohol.

13. A production process for a water-absorbent resin according to claim 2, wherein the maximum spray angle of the liquid material (B) from the spray nozzle (C) is not less than 50 °.

14. A production process for a water-absorbent resin according to claim 2, wherein the blending apparatus equipped with the spray nozzle (C) is a continuous blending apparatus comprising an agitation shaft having a plurality of paddles.

15. A production process for a water-absorbent resin according to

claim 14, wherein the area of a spray-dispersing state of the liquid material (B) projected onto a sectional area which is perpendicular to the axis direction of the blending apparatus and includes a spraying point of the spray nozzle (C) accounts for not less than 70 % of the sectional area perpendicular to the axis direction of the blending apparatus.

16. A production process for a water-absorbent resin according to claim 2, wherein the blending apparatus is equipped with the plurality of spray nozzles (C).

17. A production process for a water-absorbent resin according to claim 2, wherein the liquid material (B) is an aqueous solution of a surface-crosslinking agent which forms a covalent bond by reacting with a functional group of the water-absorbent resin (A), and

which further comprises the step of heat-treating the mixture resultant from the blending step at a water-absorbent resin temperature of 80 to 250 °C.

18. A production process for a water-absorbent resin according to claim 17, wherein the liquid material (B) is an aqueous solution including at least one selected from the group consisting of polyhydric alcohols, polyglycidyl

compounds, 1,3-dioxolan-2-on, poly(2-oxazolidinone), bis(2-oxazolidinone), and mono(2-oxazolidinone).

19. A production process for a water-absorbent resin according to claim 18, wherein the liquid material (B) is an aqueous surface-crosslinking agent solution including a polyhydric alcohol.

20. A production process for a water-absorbent resin according to claim 3, wherein the liquid material (B) is spray-blended with a blending apparatus equipped with a spray nozzle (C).

21. A production process for a water-absorbent resin according to claim 20, wherein the maximum spray angle of the liquid material (B) from the spray nozzle (C) is not less than 50 °.

22. A production process for a water-absorbent resin according to claim 20, wherein the blending apparatus equipped with the spray nozzle (C) is a continuous blending apparatus comprising an agitation shaft having a plurality of paddles.

23. A production process for a water-absorbent resin according to claim 22, wherein the area of a spray-dispersing state of the liquid material (B) projected onto a sectional area which is perpendicular to the axis direction of the blending apparatus and includes a spraying point of the spray nozzle (C) accounts for not less than 70 % of the sectional area perpendicular to the axis direction of the blending apparatus.

24. A production process for a water-absorbent resin according to claim 20, wherein the blending apparatus is equipped with the plurality of spray nozzles (C).

25. A production process for a water-absorbent resin according to claim 3, wherein the liquid material (B) is an aqueous solution of a surface-crosslinking agent which forms a covalent bond by reacting with a functional group of the water-absorbent resin (A), and

which further comprises the step of heat-treating the mixture resultant from the blending step at a water-absorbent resin temperature of 80 to 250 °C.

26. A production process for a water-absorbent resin according to claim 25, wherein the liquid material (B) is an aqueous solution including at least

one selected from the group consisting of polyhydric alcohols, polyglycidyl compounds, 1,3-dioxolan-2-on, poly(2-oxazolidinone), bis(2-oxazolidinone), and mono(2-oxazolidinone).

27. A production process for a water-absorbent resin according to claim 26, wherein the liquid material (B) is an aqueous surface-crosslinking agent solution including a polyhydric alcohol.

28. A production process for a water-absorbent resin according to claim 4, wherein the maximum spray angle of the liquid material (B) from the spray nozzle (C) is not less than 50 °.

29. A production process for a water-absorbent resin according to claim 4, wherein the blending apparatus equipped with the spray nozzle (C) is a continuous blending apparatus comprising an agitation shaft having a plurality of paddles.

30. A production process for a water-absorbent resin according to claim 29, wherein the area of a spray-dispersing state of the liquid material (B) projected onto a sectional area which is perpendicular to the axis direction of the

blending apparatus and includes a spraying point of the spray nozzle (C) accounts for not less than 70 % of the sectional area perpendicular to the axis direction of the blending apparatus.

31. A production process for a water-absorbent resin according to claim 4, wherein the blending apparatus is equipped with the plurality of spray nozzles (C).

32. A production process for a water-absorbent resin according to claim 4, wherein the liquid material (B) is an aqueous solution of a surface-crosslinking agent which forms a covalent bond by reacting with a functional group of the water-absorbent resin (A), and

which further comprises the step of heat-treating the mixture resultant from the blending step at a water-absorbent resin temperature of 80 to 250 °C.

33. A production process for a water-absorbent resin according to claim 32, wherein the liquid material (B) is an aqueous solution including at least one selected from the group consisting of polyhydric alcohols, polyglycidyl compounds, 1,3-dioxolan-2-on, poly(2-oxazolidinone), bis(2-oxazolidinone), and mono(2-oxazolidinone).

34. A production process for a water-absorbent resin according to claim 33, wherein the liquid material (B) is an aqueous surface-crosslinking agent solution including a polyhydric alcohol.

35. A production process for a water-absorbent resin according to claim 5, wherein the maximum spray angle of the liquid material (B) from the spray nozzle (C) is not less than 50 °.

36. A production process for a water-absorbent resin according to claim 5, wherein the blending apparatus equipped with the spray nozzle (C) is a continuous blending apparatus comprising an agitation shaft having a plurality of paddles.

37. A production process for a water-absorbent resin according to claim 36, wherein the area of a spray-dispersing state of the liquid material (B) projected onto a sectional area which is perpendicular to the axis direction of the blending apparatus and includes a spraying point of the spray nozzle (C) accounts for not less than 70 % of the sectional area perpendicular to the axis direction of the blending apparatus.

38. A production process for a water-absorbent resin according to claim 5, wherein the blending apparatus is equipped with the plurality of spray nozzles (C).

39. A production process for a water-absorbent resin according to claim 5, wherein the liquid material (B) is an aqueous solution of a surface-crosslinking agent which forms a covalent bond by reacting with a functional group of the water-absorbent resin (A), and

which further comprises the step of heat-treating the mixture resultant from the blending step at a water-absorbent resin temperature of 80 to 250 °C.

40. A production process for a water-absorbent resin according to claim 39, wherein the liquid material (B) is an aqueous solution including at least one selected from the group consisting of polyhydric alcohols, polyglycidyl compounds, 1,3-dioxolan-2-on, poly(2-oxazolidinone), bis(2-oxazolidinone), and mono(2-oxazolidinone).

41. A production process for a water-absorbent resin according to claim 40, wherein the liquid material (B) is an aqueous surface-crosslinking agent

solution including a polyhydric alcohol.

42. A water-absorbent resin, which is surface-crosslinked with a surface-crosslinking agent including at least a polyhydric alcohol, has a particle size distribution such that the ratio of particles having particle diameters of smaller than 150 μm is not more than 5 weight %, and exhibits an absorption capacity without a load of not less than 30 g/g,

with the water-absorbent resin being characterized in that: the single-layer absorption capacity (10 min.) of particles having particle diameters of 600 to 300 μm is not less than 30 g/g under a load; the single-layer absorption capacity (60 min.) of particles having particle diameters of 600 to 300 μm is not less than 30 g/g under a load; the single-layer absorption capacity (10 min.) of particles having particle diameters of 300 to 150 μm is not less than 30 g/g under a load; and the single-layer absorption capacity (60 min.) of particles having particle diameters of 300 to 150 μm is not less than 30 g/g under a load.

43. A water-absorbent resin, which is surface-crosslinked with a surface-crosslinking agent including at least a polyhydric alcohol, has a particle size distribution such that the ratio of particles having particle diameters of smaller than 150 μm is not more than 5 weight %, and exhibits an absorption capacity without a

load of not less than 30 g/g,

with the water-absorbent resin being characterized in that the index of uniform surface-treatment is not less than 0.70,

wherein: index of uniform surface-treatment = (time variation of single-layer absorption capacity of particles having particle diameters of 600 to 300 μm under a load) × (time variation of single-layer absorption capacity of particles having particle diameters of 300 to 150 μm under a load) × (variation between particles of the single-layer absorption capacity (10 min.) under a load) × (variation between particles of the single-layer absorption capacity (60 min.) under a load),

where: time variation of single-layer absorption capacity of particles having particle diameters of 600 to 300 μm under a load = (single-layer absorption capacity (10 min.) of particles having particle diameters of 600 to 300 μm under a load) / (single-layer absorption capacity (60 min.) of particles having particle diameters of 600 to 300 μm under a load); time variation of single-layer absorption capacity of particles having particle diameters of 300 to 150 μm under a load = (single-layer absorption capacity (10 min.) of particles having particle diameters of 300 to 150 μm under a load) / (single-layer absorption capacity (60 min.) of particles having particle diameters of 300 to 150 μm under a load); variation between particles of the single-layer absorption capacity (10 min.) under a load =

(single-layer absorption capacity (10 min.) of particles having particle diameters of 300 to 150 μm under a load) / (single-layer absorption capacity (10 min.) of particles having particle diameters of 600 to 300 μm under a load); and variation between particles of the single-layer absorption capacity (60 min.) under a load = (single-layer absorption capacity (60 min.) of particles having particle diameters of 300 to 150 μm under a load) / (single-layer absorption capacity (60 min.) of particles having particle diameters of 600 to 300 μm under a load).

44. A sanitary material, comprising the water-absorbent resin as recited in claim 42.

45. A sanitary material, comprising the water-absorbent resin as recited in claim 43.